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1530

GERMANY'S RAILWAY PROBLEMS IN ASIATIC TURKEY

By R. J. BJURSTEDT

GERMANY'S plans for the commercial exploitation of Asiatic Turkey date back thirty years, but her active campaign to bring about a practical realization of these ambitions has not occupied much more than the last decade. Things were rushed during that decade, however, and in scarcely any of the "places in the sun" over which the German flag actually floated had more headway toward complete Teutonification been made than in Asia Minor, Syria, and Mesopotamia. The main factor in winning commercial, if not political, control of this incalculably rich region was to be a comprehensive railway system, gridironing the agricultural sections and linking up the principal strategic points with modern trunks capable of transporting powerful military forces wherever they were most needed for offense or defense.

In 1912, at Aleppo, a German engineer traced for the writer 7,776 miles of railway upon the map of Asiatic Turkey, stating that this represented the preliminary scheme of development. "The completion of these lines," he said, "will make it possible, first, to bring the products of Asiatic Turkey's principal agricultural and mineral regions to market, and, second, for the Turks to put up a stiff defense against their principal enemy, Russia, on the north, or against any threat to Mesopotamia from the east or south, or to Palestine from the south and west." Nothing was said about offense; but Meissner Pasha, chief engineer of the Bagdad and Hedjaz railways, practically admitted to the writer that "strategic considerations" were not lost sight of in running the survey of the former line hundreds of miles away from the direct route between Aleppo and Bagdad, so as to flank Armenia on the south and Persia on the west, and that a potent factor in determining the Turks to have the northern end of the Hedjaz Railway built through the desert south of Damascus instead of the more fertile coastal region, was to make it safe from naval attack in the event operations were being carried on against Egypt from Palestine.

But however well prepared Germany was for the great struggle in Europe, in Asia the crisis was precipitated several years before she was ready for it. Feverishly as she had been working in the three or four years immediately preceding the war, August, 1914, found her with only something like one-third of the great 7,800-mile railway system she had projected for the development of the 800,000 square miles of Asiatic Turkey completed, and, worse still, not even were the two great military trunks which were to have formed the backbone of defense finished throughout all of their respective lengths. As a consequence there have been two kinds of battles waged beyond the end of the Mediterranean—one of the Turks against their enemies, in an endeavor to drive back the invading Russians and Britons, and the other of the Germans against the forces of nature in an endeavor to provide their ally with adequate transportation facilities. Neither Turk nor German has come anywhere near a sweeping success in their respective endeavors so far. With whomever ultimate victory rests, however, enough is known of what the Germans, in the face of apparently prohibitive odds, have accomplished in railway construction to make their achievements historic from an engineering standpoint, if from no other.

Since the whole of Asiatic Turkey lying beyond the longitude of the eastern end of the Mediterranean is barely able to feed its scanty population in normal times, and has no manufacturing facilities whatever, it will readily be understood why, with the sea closed to the central allies, a first-class railway system would be almost a *sine qua non* to extended military operations in this region. Such a line there was from Scutari, opposite Constantinople on the Bosporus, to the Taurus Moun-

tains, while in Syria and Palestine there were also modern railways, and even the beginnings of one—the Bagdad—in Mesopotamia. But between the systems of Asia Minor and those of the rest of Asiatic Turkey, there was, when the war started, not only the break of twenty or thirty miles of heavy rock work in the Taurus, but a similar stretch of almost equally difficult construction in the Amanus Range, which forms the ultimate barrier between Asia Minor and Syria.

When the writer traversed the Amanus and Taurus passes in 1913 by caravan the German engineers in charge of construction expressed themselves as "hopeful" of finishing the last tunnels by the middle of 1917, in time to open up through service between the Bosporus and Bagdad by the fall of that year, when the "golden spike" of the great trans-Mesopotamian line was expected to be driven somewhere along the Tigris. My own impression then was that this hope was too sanguine.

When Turkey came into the war in October, 1914, the difficulties in the way of construction in the Taurus and the Amanus were greatly increased by the closing of the sea routes, so that what had hitherto been the main line of supply—the steamer service to the Gulf of Alexandretta—was no longer available. With rail communication between the Bosporus and Germany already severed in the Balkans, the German engineers toiling to throw the "Turkish life line" across the Taurus and Amanus mountains were left very much "on their own." In the countries of the entente group, as the writer had good opportunity to observe, the general impression was that railway work in all parts of Turkey in Asia would be practically brought to a standstill for lack of materials, and in London and Paris the opinion was confidently expressed that the gaps in the two great ranges of Asia Minor could not possibly be closed in the duration of the war.

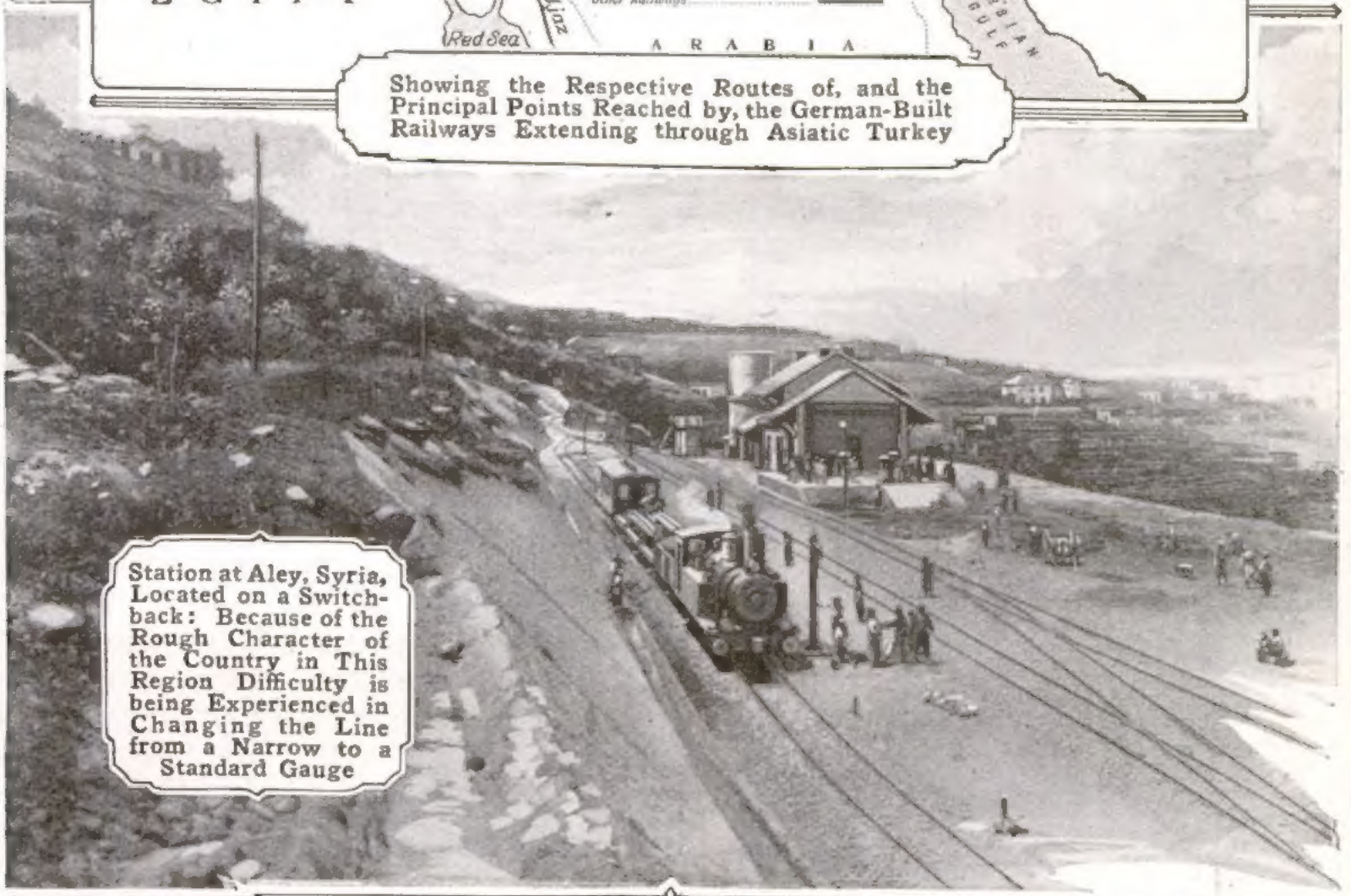
There was little news of railway work in Asia Minor during the first eight months of 1915, and then, like lightning from a clear sky, came the announcement from Constantinople that the three-mile Bagtche tunnel through the backbone of the Amanus ridge had been completed, and that trains were expected to run between Adana and Aleppo by November or December. London openly scoffed at the report, and the writer must confess to having held much the same attitude toward it until, under date of September 3, 1915, he read in the Daily Commerce Reports of the American Consular Service a detailed description of what had been accomplished in the region in question. After telling in a general way how, in spite of the delays occasioned by the war, this most important piece of railway construction in Turkey had passed the problematical stage, the report gives the following specific details, which will leave no doubt in the mind of one familiar with the work in hand that the most important difficulties have been surmounted:

"Leaving Mamoure, the last station of the Bagdad Railway on the Cilician plain, the line begins, at an altitude of 394 ft., to climb the slopes of the Amanus Mountains, which are intercepted by ravines crossed by eight steel bridges and seven small tunnels, the latter having a total length of 6,355 ft. Thus it arrives at Bagtche station, situated at an altitude of 1,754 ft., near the entrance of the great tunnel which bears its name. Before reaching the mouth of this tunnel, the line runs through two other tunnels, having a length of 236 and 394 ft. respectively, and over a small bridge. The great tunnel has a length of 16,028 ft. For about 8,000 feet it ascends to 246 ft. above the level of the entrance, and then begins to descend and emerges at the other end 197 ft. above the level of the eastern entrance. Between this point and Islahie station, which is still building, there are four more tunnels having a combined length of 3,500 ft. The total length of the tunnels necessary to construct in crossing this range of mountains is, therefore, 26,250 feet."

How this miracle—for it is scarcely

Desert Water Tank on Hedjaz Road Which, through Connecting Line, Reaches Bagdad Railway at Aleppo. Line is Double-Tracked between Damascus and Maan

Showing the Respective Routes of, and the Principal Points Reached by, the German-Built Railways Extending through Asiatic Turkey



Station at Aley, Syria, Located on a Switch-back: Because of the Rough Character of the Country in This Region Difficulty is being Experienced in Changing the Line from a Narrow to a Standard Gauge

less—has been wrought it is only possible to conjecture at this time. Even if the Germans, with characteristic foresight, had provided adequate supplies of materials in anticipation of being cut off from their main sources, it is still almost beyond understanding how so much tunnel and bridge work could have been accomplished in so short a period, especially since it is authoritatively stated that several hundred yards of pure quartz had to be pierced in the Bagtche bore, and this of so refractory a nature that drills of special construction had to be devised to make an impression upon it. At any rate, there is now no reason to doubt that the work in the Amanus Mountains is done, and a similar announcement regarding that in the Taurus may be expected at any time.

It is probable that such railway work as the Germans have been able to do since the outbreak of the war in Syria, Palestine, and Mesopotamia has depended upon accumulated stores of material rather than upon that which could have been laboriously transported by mule and camel over the passes of Taurus and Amanus. At the outbreak of the war the western railhead of the Bagdad Railway had been advanced some distance beyond the Euphrates, but last fall military experts in London were confident that, in the year that had elapsed since the inauguration of hostilities with Turkey, it could not have been pushed farther than Ras-el-Ain, midway between Aleppo and Mosul, on the Tigris. The unexpected appearance at Bagdad of the overwhelming Turkish forces which defeated General Townshend at the end of last November, however, furnish good base for the belief that the "unbridged" gap between the Mesopotamian railheads is very much less than had been anticipated by the British. There is no possibility, as some so-called military experts in America have held, that the Bagdad Railway is completed throughout its length, but even the establishment of service to Mosul would be of great help to the Turks, as from that point, which is the site of ancient Nineveh, munitions and supplies can be expeditiously rafted down the Tigris to Samara, to which point rails had already been laid from Bagdad when the war started.

In Syria the principal effort of the German engineers will have been directed to broad-gauging the 250 miles of meter-gauge French-built line between Aleppo and Damascus, so that it will conform with the 4-ft. 8½-in. gauge of the Bagdad and Hedjaz railways, of which it forms the connecting link. Except for the tunnels and bridges where this line crosses the Anti Libanus Mountains, between Reyak and Damascus, this task is not a heavy one, but it would seem that something of the same sort of engineering "wizardry" which was performed in the Amanus Range will have to be called into play if the heavy steel and rock work incident to broad-gauging this division is to be completed in time for the threatened "spring drive" on the Suez Canal.

In Palestine, also, all efforts have been bent to preparing the way for an attack upon Egypt. There is no reason to doubt the truth of the report that the Hedjaz Railway has been double-tracked between Damascus and Maan, southeast of the Dead Sea, as, given the material, the laying of additional rails across the level desert of this region could be done very quickly. A more ambitious piece of construction is a line running from E'Futeh, on the Deah-Haifa branch of the Hedjaz Railway, via Lydda and the plain of Sharon to Beersheba, near the southern frontier of Palestine. The writer has unquestioned authority for believing that not only was this line completed to Beersheba in the middle of January, this year, but that the embankments and culverts were ready for the rails from that point on to the Egyptian frontier. Indeed, should the threatened Egyptian campaign actually be launched, and should the British—as it is now probable they will—confine their defense to the immediate region of the Suez Canal, there is no

Railway-Construction Train on Stone Viaduct Spanning Gorge in the Eastern Foothills of the Amanus Mountains, through Which the Line has been Completed

Pushing through the Taurus Mountains to Close the Last Gap on the Bagdad Railway between Asia Minor and Syria

Eastern Portal of New Three-Mile Tunnel, Longest in Asia, Piercing Main Range of Amanus Mountains

Stretch of Bagdad Railway in Taurus Mountains: Completion of the Line will Establish Rail Communication between Bosporus and Sinai Peninsula

doubt that this line will be pushed some distance across the Sinai peninsula before giving way to portable railways in the rear of the Turkish armies.

Notwithstanding their almost superhuman efforts in Asiatic Turkey, the writer does not believe it possible for the Germans to develop a line of railway communications from the Bosporus to the Sinai peninsula adequate to munition and feed a large enough army—it would have to be close to 500,000 strong to stand any chance of success—seriously to threaten the Suez Canal; and it is by no means unlikely that uncertain communications may make it impossible for the Turks to drive the British out of Mesopotamia or the Russians out of Armenia. In spite of these possibilities, and no matter to which side the military victory goes, no unprejudiced observer can deny that, considering the difficulties with which they have been faced from the outset, the achievements of the German engineers in Asiatic Turkey are worthy to rank with the most remarkable of their kind in history.